

Attorney Docket No. 13DV-12817 (07783-0046)
Application No. 09/613,162

IN THE CLAIMS

Please amend the claims as follows:

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1. (Currently amended) A process for forming a tube clamp comprising the steps of:
providing a plurality of sheets of curable material having embedded fibers, each sheet having a length and a width to form a plane, and a thickness, the fibers embedded in the curable material to form a matrix in which the fibers are substantially within the plane of the sheet;
layering the a plurality of sheets of curable material ~~having fibers embedded in a curable matrix~~ to a preselected thickness along a contour of layup tooling having a predetermined shape;
curing said material to at least near net shape; then
removing said cured material from said layup tooling while retaining the shape of said layup tooling without exposing fibers.
 2. (Currently amended) The process of claim 1 wherein the step of providing the plurality of sheets and layering of the plurality of sheets further includes layering sheets of unidirectionally oriented fibers in a polymer resin matrix, and wherein the step of removing said cured material further includes removing said cured material while maintaining the fibers along the contour of the layup tooling as continuous.
 3. (Currently amended) The process of claim 1 wherein the step of providing a plurality of sheets and layering of sheets further includes providing and layering sheets of woven fibers in a polymer resin matrix, and the step of removing said cured material further includes removing said cured material while maintaining the fibers along the contour of the layup tooling as continuous.
 4. (Currently amended) The process of claim 1 wherein the step of layering of sheets further includes layering sheets of ~~randomly oriented~~ fibers bi-directionally oriented fibers in a polymer resin matrix, the bi-directionally oriented fibers lying within the plane of the plurality of sheets.
 5. (Original) The process of claim 1 wherein the curable matrix is a polyimide resin matrix and the fibers are carbon fibers.

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6. (Currently amended) The process of claim 1 wherein the step of layering a plurality of sheets includes layering a first plurality of sheets to a predetermined thickness to form a bottom ply layer, layering a second plurality of sheets to a predetermined thickness to form a top ply layer, and further includes sandwiching filler material between the top ply layer and the bottom ply layer.
7. (Original) The process of claim 6 wherein the filler material includes a plurality of plies cut to a predetermined shape to fill a region between the bottom ply layer and the top ply layer.
8. (Currently amended) The process of claim 6 wherein the step of layering a plurality of sheets to form a top ply layer and a bottom ply layer sandwiching filler material between the top ply layer and the bottom ply layer includes layering sheets of random fiber mat comprising chopped fiber in polymer resin, between ply layers comprising sheets having fibers embedded in the curable material to form a matrix in which the fibers are substantially within the plane of each sheet so that the tube clamp adjacent to a tube includes no exposed fiber.
9. (Original) The process of claim 1 wherein the step of curing includes autoclaving said material at a predetermined temperature and pressure.
10. (Original) The process of claim 1 wherein the step of curing includes processing in a match metal press having a movable upper platen at a predetermined temperature and pressure.
11. (Currently Amended) A process for forming a tube claim comprising the steps of:
providing a plurality of sheets of curable material having embedded fibers, each sheet having a length and a width to form a plane, and a thickness, the fibers embedded in the curable material to form a matrix in which the fibers are substantially within the plane of the sheet;
layering a the plurality of sheets of fibers fiber to form a fiber bundle of a preselected thickness along a contour of layup tooling having a predetermined shape;
injecting polymer into the tooling to the impregnated fiber bundle;
curing the impregnated fiber bundle to at least near net shape;

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then removing said cured material from said layup tooling while retaining the shape of said layup tooling without exposing fibers.

12. (Currently amended) A process for forming a tube clamp comprising the steps of:

providing a plurality of sheets of curable material having embedded fibers, each sheet having a length and a width to form a plane, and a thickness, the fibers embedded in the curable material to form a matrix in which the fibers are substantially within the plane of the sheet;

layering a first plurality of sheets of the curable material to a preselected thickness along a contour of a first layup tooling having a first predetermined shape;

layering a second plurality of sheets of curable material having fibers embedded in a curable matrix to a second preselected thickness along a contour of second layup tooling having a second predetermined shape, the first predetermined shape and second predetermined shape having mating interfaces;

curing said first plurality of sheets of curable material and second plurality of sheets of curable material to net shape;

removing the cured material from said first and second layup tooling while retaining the contour of said toolings having predetermined shapes without exposing fibers; and

mating said cured material from said first and second layup tooling along the mating interfaces.

13. Cancelled.

14. Cancelled.

15. Cancelled.

16. Cancelled.

17. Cancelled.

18. Cancelled.

19. Cancelled.

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20. Cancelled.

21. Cancelled.

22. Cancelled.

23. Cancelled.

24. Cancelled.

25. Cancelled.

26. Cancelled.

27. Cancelled.

28. Cancelled.

29. Cancelled.

30. Cancelled.

31. (New) The process of claim 2 wherein the layering the sheets of the unidirectionally oriented fibers further includes layering adjacent sheets so that the fibers in the adjacent sheets are angled at predetermined angular orientations.

32. (New) The process of claim 6 wherein layering a first plurality of sheets to a predetermined thickness to form a bottom layer includes layering sheets of unidirectional fiber.

33. (New) The process of claim 6 wherein layering a first plurality of sheets to a predetermined thickness to form a bottom layer includes layering sheets of woven fiber.

34. (New) The process of claim 6 wherein layering a second plurality of sheets to a predetermined thickness to form a top layer includes layering sheets of unidirectional fiber.

35. (New) The process of claim 6 wherein layering a second plurality of sheets to a predetermined thickness to form a top layer includes layering sheets of woven fiber.